

Cocooned reactor opened after five years

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In December, workers entered C Reactor for the first time in five years and found it in just about the same condition it was in when they closed the doors in 1998.

The entry by Environmental Restoration Contractor employees was part of the first scheduled surveillance and maintenance visit inside C Reactor since it was placed in interim safe storage, or cocooned. It was the first of Hanford's nine plutonium production reactors to be placed in interim safe storage.

Cocooning of Hanford's surplus reactors for up to 75 years will allow time for the U.S. Department of Energy and its regulators and stakeholders to determine the final disposal method and to allow radiation levels in the reactor cores to decay to more manageable levels. It involves demolishing the facility down to the shield walls surrounding the reactor core, installing remotely monitored heat and moisture sensors and placing a new steel roof over the entire structure.

The objective of cocooning is to establish a safe, environmentally secure and stable structure that will protect the public and the environment from potential contamination while significantly reducing the surveillance and maintenance costs.

Just as they left it

"C Reactor is a radioactively contaminated facility," said Dave Baker, Bechtel Hanford area superintendent. "At the completion of the cocooning phase, radiological surveys were performed and facility conditions were noted. The five-year surveillance was performed to assess present conditions and determine if any degradation had occurred."

Bechtel Hanford manages the ER Project for the DOE Richland Operations Office. The ERC surveillance and maintenance group is responsible for maintaining Hanford's surplus contaminated facilities and waste sites in a safe and stable condition until final disposition.



This wide-angle photo of the C Reactor face is one of many taken during the recent entry for surveillance and maintenance.

Cocooned reactor opened after five years, cont.

“With the exception of one small area of the roof flashing requiring minor repair and a small oil drip inside the structure, we found C Reactor to be in the same condition as when it was sealed in 1998,” Baker said.

The recent surveillance showed that cocooning creates a safe and environmentally secure structure while significantly reducing the surveillance and maintenance costs. Based on the results, the ERC team will determine whether the five-year period can be safely extended, reducing surveillance costs even further.

Members of the surveillance and maintenance team participating in the activity included radiation control technicians, decontamination and decommissioning workers, a heavy-equipment driver, an industrial hygienist, a field supervisor, a field engineer, a project engineer and a safety representative.

Alert for hazards

Because the structure had been sealed for five years, particular attention was paid to potential hazards. “The first step was to ensure the facility was safe to enter,” said Don Eckert, field supervisor. An industrial hygienist sampled air quality and a radiation control technician checked radiological conditions. “The team then toured the facility along predetermined routes to document its condition and identify maintenance requirements,” said Eckert. “Once all the team’s work is completed, the door will be resealed.”

To document conditions inside the reactor, the team used a new high-resolution digital camera and newly developed software that make it possible to create 360-degree photographs. “The photographs will allow comparison to future observed conditions and will be used to develop a virtual tour of the facility interior,” said Bob Egge, project engineer. “System users can zoom in to specific areas of interest and see them from all angles and in greater detail without having to enter the facility.”

Two of Hanford's former plutonium production reactors have been cocooned. DR Reactor was cocooned in 2002. F Reactor cocooning will be completed this year. And the cocooning of D and H Reactors is scheduled for completion in 2004. ■